



DRAFT

FOR REVIEW ONLY

Assessment of IT in the Commonwealth

Findings Validation Workshop

April 4, 2012



This report is the first deliverable in an independent review of Information Technology (IT) across the Commonwealth's executive branch. It contains a current compilation of information and feedback provided to PTI by IT and budget experts from all cabinets, including the Commonwealth Office of Technology and the Office of State Budget Director.

It is very important that PTI have an accurate picture of our IT environment so that the recommendations generated are actionable and realistic. During the continuing reviews taking place over the next few days and weeks, it is possible that the contents of this report may be revised. Recommendations and a final report will be forthcoming once these findings are validated.

If you have questions or comments, please share them with me via email (lori.flanery@ky.gov) or by calling 502-564-4240.

Sincerely,

Lori H. Flanery, Secretary

Finance and Administration Cabinet



Agenda

1. **Welcome** (5 min)
2. **Project Status** (5 min)
3. **Findings** (110 min)
 - Scope
 - Summary
 - IT Governance
 - IT Spending and Funding
 - IT Organization and Service Delivery
4. **Discussion** (60 min)

Project Status

◆ Assessment phase largely complete

- Interviewed over 75 Commonwealth staff
- Analyzed IT funding, staffing, workloads, and infrastructure allocation
- Reviewed best practices

◆ Currently on schedule for report delivery

- Data validation took longer than planned
- Timeline for developing recommendations compressed
- Report delivery dates could be impacted

◆ No significant issues at this time

- Commonwealth staff exceptionally cooperative and responsive

Findings

Scope

◆ Executive Branch, excluding

- Boards
- Commissions
- Departments headed by constitutional officials
- IT funding and staffing from higher education institutions and K-12

◆ Aligned with SGI, focused on

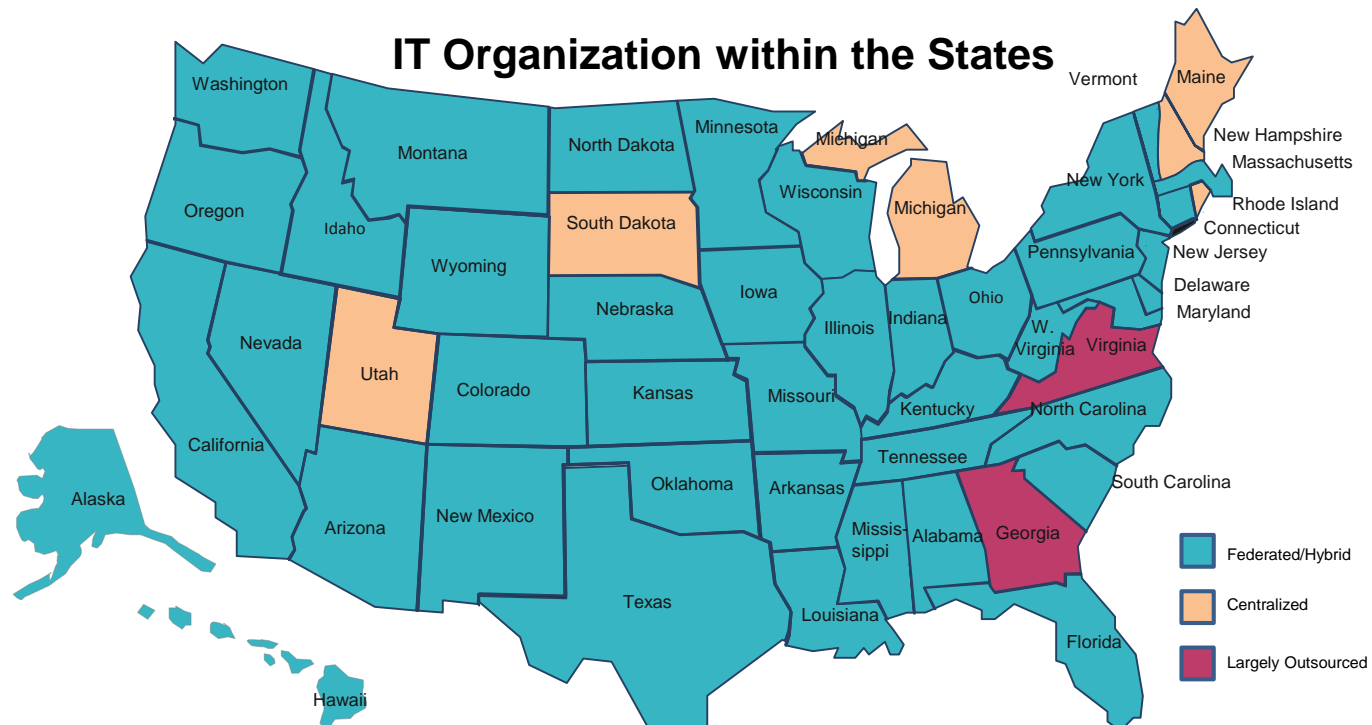
- IT governance
- IT spending and funding
- IT organization and service delivery

Findings

Summary

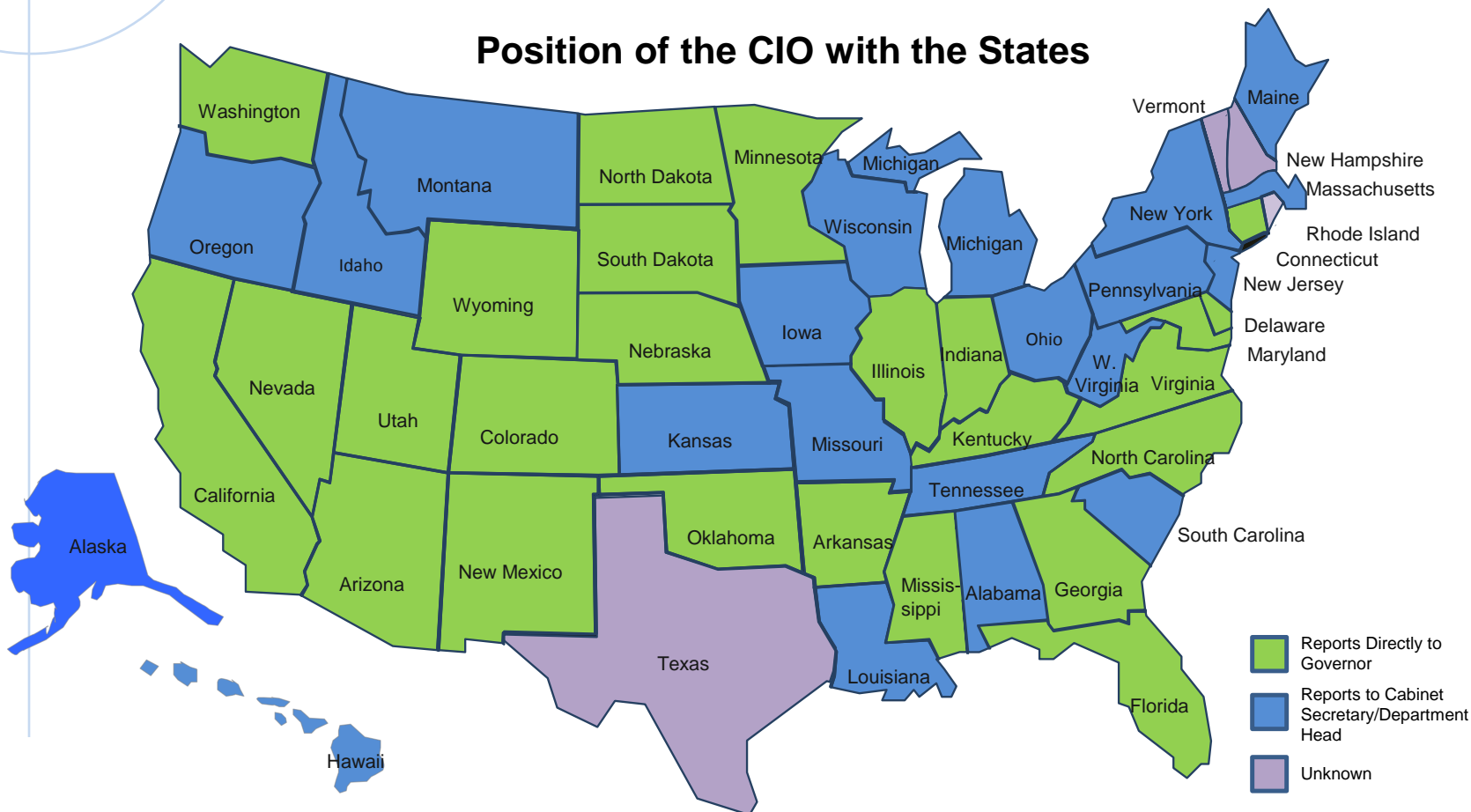
◆ Federated IT service delivery model similar to majority of states

- Distributed approach to commodity services results in higher labor costs and duplicate infrastructure
- Similar issues with redundant application platforms



Findings Summary

- ◆ **Unlike Kentucky, most states have fulltime CIOs**



Findings

Summary

◆ **Difficult to assess delivery alternatives for selected IT services**

- Federated nature of services makes comparison challenging
- IT expenditure coding not designed to provide total cost by service
- COT service catalog not easily compared to private sector

◆ **Current approach to IT infrastructure management increases risk of service interruption and unauthorized access**

- Limited disaster recovery capability
- Federated security increases vulnerability

◆ **Diverse IT infrastructure impacts future positioning**

Findings Summary

Status of Shared Services Initiatives

■ (Commonwealth Position in Green)

Service	Percent		
	Planned	Ongoing	Completed
Telecom	8%	27%	65%
Email	20%	42%	38%
Data centers	20%	48%	32%
Security	22%	35%	43%
Backup/disaster recovery	17%	54%	29%
Servers	21%	58%	21%
Storage	28%	46%	21%
Content management	33%	43%	25%
Desktop support	37%	37%	26%
Business applications	35%	57%	8%
Staff	43%	34%	23%
Imaging	17%	26%	17%

Source: NASCIO's 2011 Survey of State CIOs

Findings

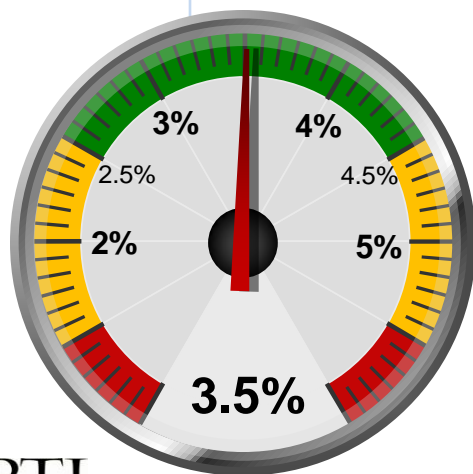
Summary

- ◆ **Financial systems report \$358 million in IT expenditure for FY2011**
- ◆ **For analytical and benchmarking purposes, PTI focused on \$188 million in IT operating expenses**
- ◆ **PTI's lower figure is due to**
 - Exclusion of capital and non-IT administrative overhead
 - Some departments not included in data gathering
 - Lower reported personnel and overhead costs
- ◆ **Some adjustments to PTI's figures will be made prior to the final report**

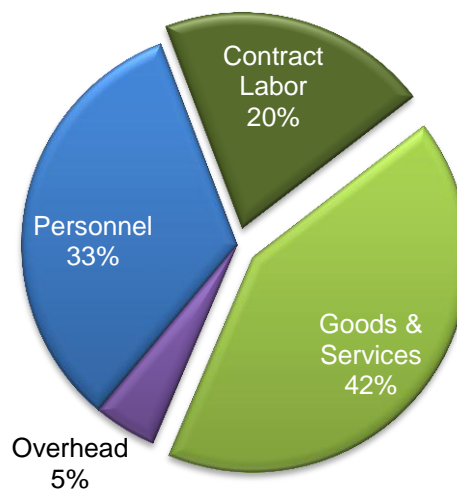
Findings Summary

- ◆ **Despite inefficiencies, overall IT spend within benchmark ranges**
 - \$188.5M in FY 2011 IT operating expenditures
 - Employee IT labor costs lower than PTI's experience, due to extensive use of contract labor and relatively low wages
 - About two-thirds of IT spend outside COT

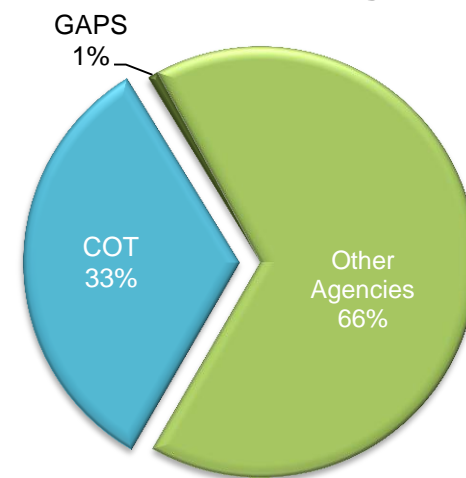
IT as a % of
Operating Expenditures



IT Spend by Category

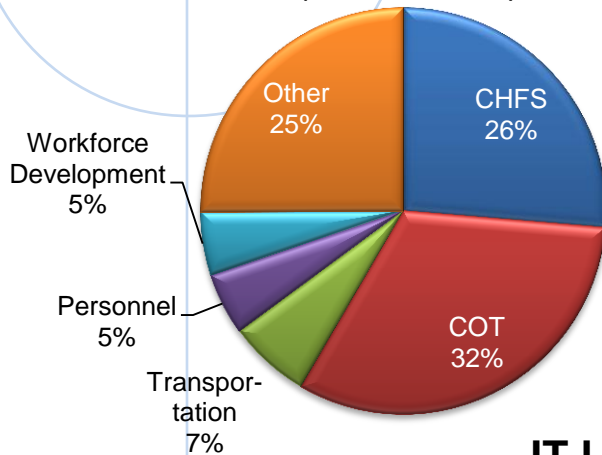


IT Spend:
COT vs. Other Agencies

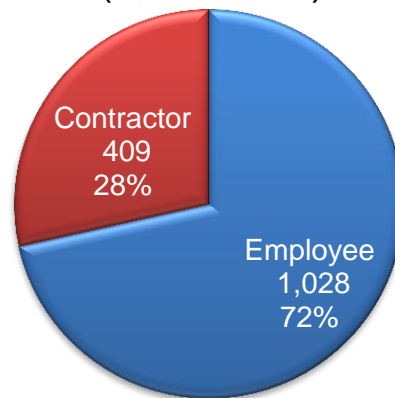


Findings Summary

Total IT Labor by Cabinet
(1,437 FTE)



IT Labor Force
(1,437 FTE)



- ◆ Nearly 70% of IT labor in agencies other than COT
- ◆ Gartner 2011 survey showed 13% average contractor portion of IT FTEs
- ◆ Merit system constrains ability to hire specialized IT skills, contributing to contractor usage
- ◆ Commodity IT disciplines distributed across Commonwealth



Findings

Summary

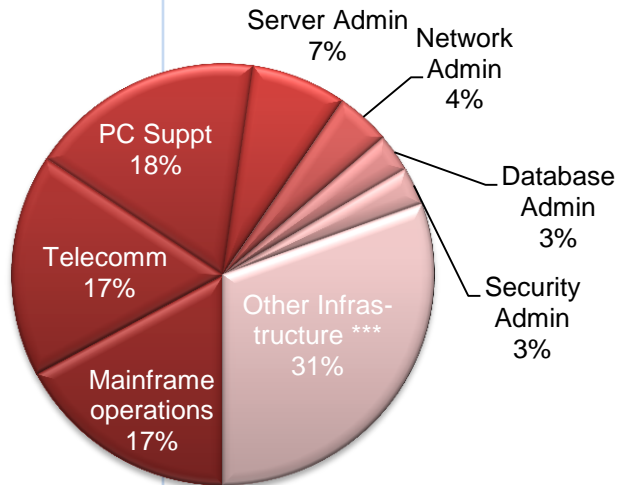
◆ Previous shared services efforts have had limited success, due in part to

- Unrealistic projections of total cost savings
- Lack of enabling legislation and executive orders made it difficult to realize available savings
- Insufficient recognition of benefits other than cost savings

Findings

Summary: Potential Cost Savings

IT Infrastructure (\$85.5M)



- ◆ **Reduced contractor usage**
- ◆ **Shared infrastructure support services**
 - Four IT infrastructure services consume nearly 60% of infrastructure spend
- ◆ **IT facility and equipment consolidation**
 - Servers
 - Storage
 - Phone systems
- ◆ **Common application platforms**
- ◆ **Alternative sourcing (longer term)**



Findings

IT Governance

- ◆ **Standards setting and advisory bodies in place**
- ◆ **COT strategic plan created in accord with legislation**
- ◆ **Efficacy of long-term planning inhibited by executive leadership changes and lack of Commonwealth strategic IT plan**
- ◆ **Unlike Kentucky, most states have fulltime CIOs**
- ◆ **Redundancies in enterprise applications**



Findings

IT Governance

- ◆ **Distributed IT purchasing potentially resulting in**
 - Higher costs
 - Unnecessary redundancy
 - Non-compliance with standards
 - Increased complexity
 - More difficult integration
 - Greater support requirements
- ◆ **Capital project planning process missing opportunities to realize IT economies of scale**
- ◆ **Some Executive Branch IT decisions made without sufficient focus on agency business needs, priorities, or impacts**



Findings

IT Spending and Funding

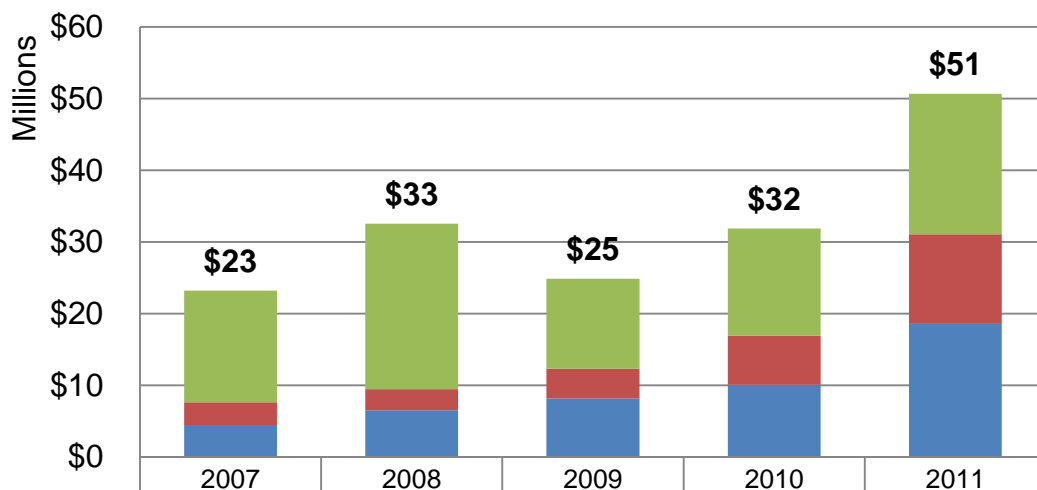
- ◆ **IT spending difficult to track and budget, with no single point of accountability for IT reporting**
- ◆ **Agencies perceive COT costs largely unimpacted by agency budget cuts**
- ◆ **Lack of funding model for IT innovation**
- ◆ **COT service catalog broadly aligned with private sector; however**
 - Customers perceive it overpriced
 - No easy way to compare costs against other states or sourcing alternatives
 - Private sector offerings often simpler

Findings

IT Spending and Funding

Capital Expenditure Analysis

Capital IT Spending (2007-2011)



	2007	2008	2009	2010	2011
Total	\$23,214,967	\$32,539,700	\$24,874,098	\$31,852,406	\$50,686,939
Other Projects	\$15,579,854	\$23,078,398	\$12,543,019	\$14,951,323	\$19,610,624
CHFS Applications	\$3,179,015	\$2,949,843	\$4,154,347	\$6,834,533	\$12,494,935
Personnel KHRIS	\$4,456,098	\$6,511,459	\$8,176,732	\$10,066,550	\$18,581,380

- ◆ Annual capital IT spend between \$25 and \$50 million for past 5 years
- ◆ Represents approximately 20% of total IT spend (aligned with Gartner benchmark)
- ◆ Recent spike largely driven by CHFS and Personnel

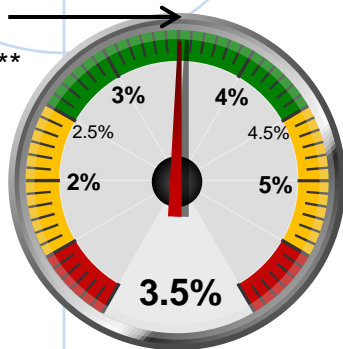
Findings

IT Spending and Funding

Operating Expenditure Analysis

IT as a % of Operating Expenditures*

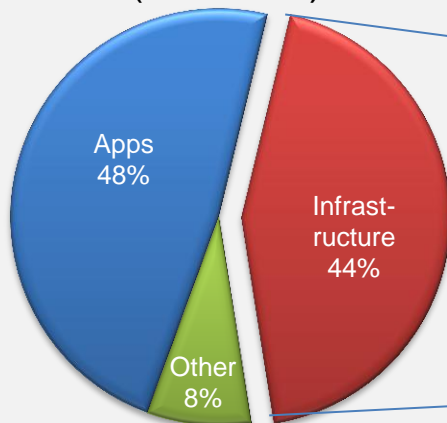
Gartner
Benchmark**
(3.6%)



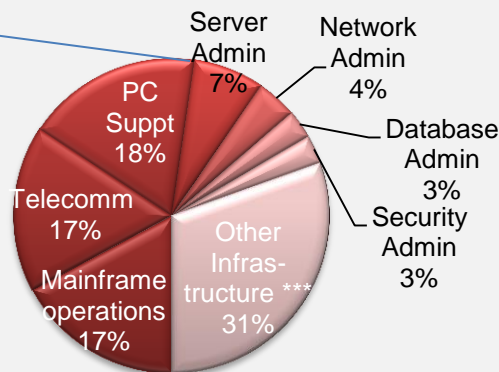
* PTI target range in green.

** This benchmark includes capital expenditures and has been trending down over time.

IT Spending by Major Service (\$188.5M)



IT Infrastructure (\$85.5M)



◆ \$188.5M in FY 2011 IT operating expenditures

- ~\$7,500 per in scope FTE
- ~\$43 per citizen

◆ IT spend near Gartner benchmark and within PTI's target range

◆ Four IT infrastructure services consume nearly 60% of infrastructure spend

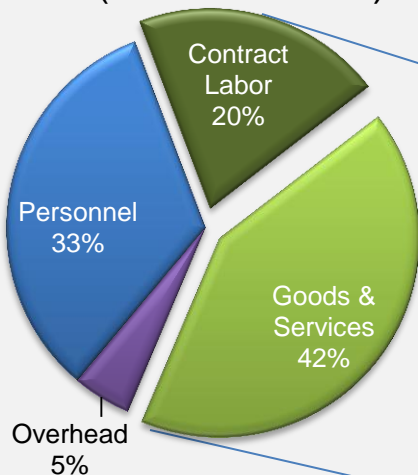
*** Some goods and services costs associated with the seven largest categories are contained within Other Infrastructure due to reporting system limitations.

Findings

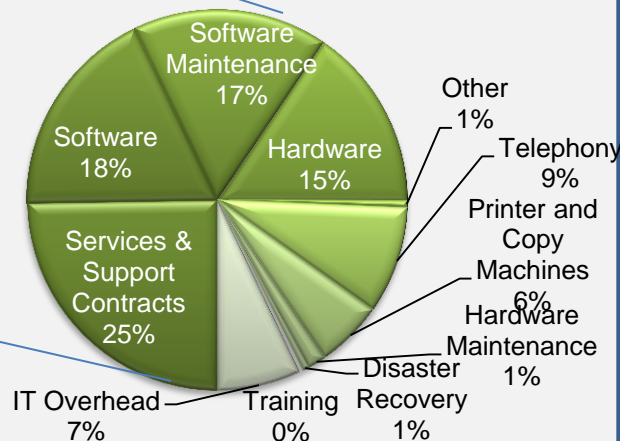
IT Spending and Funding

Operating Expenditure Analysis

IT Spending by Category
(\$188.5 Million)



Total IT Goods & Services Including Contract Labor
(\$130.4 Million)



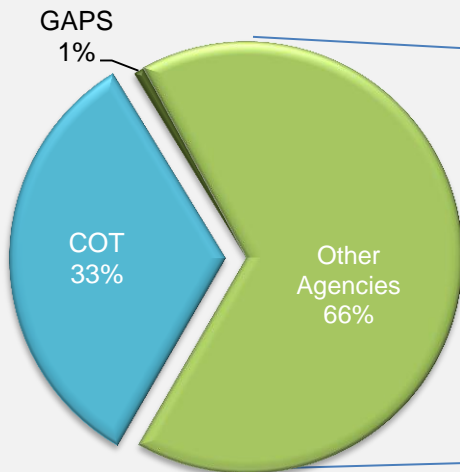
- ◆ **Employee IT labor costs low in our experience – typically 50%-60% of total IT spend**
- ◆ **Largely due to heavy reliance on contractors**
- ◆ **Relatively low employee wages also contribute**

Findings

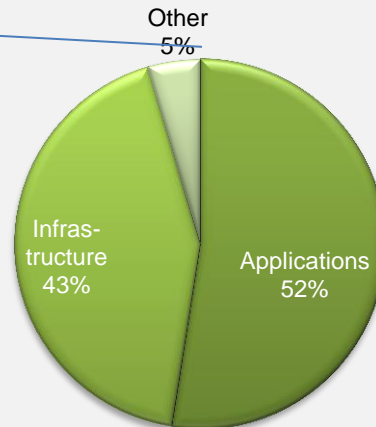
IT Spending and Funding

Operating Expenditure Analysis

IT Spending by COT vs. Other Agencies



IT Spending by Other Agencies (\$125 Million)

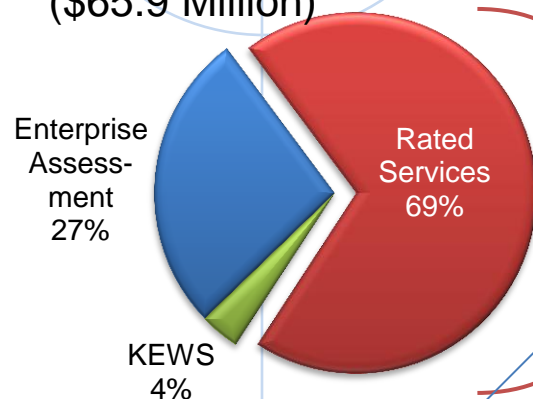
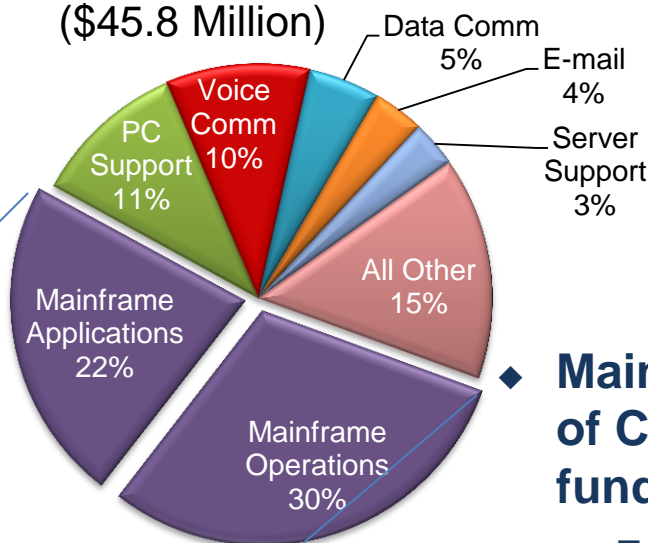


- ◆ Two-thirds of total IT spend outside COT
- ◆ No best practice for central vs decentralized spend
- ◆ Other agency spend about evenly split between applications and infrastructure

Findings

IT Spending and Funding

COT Billing Analysis

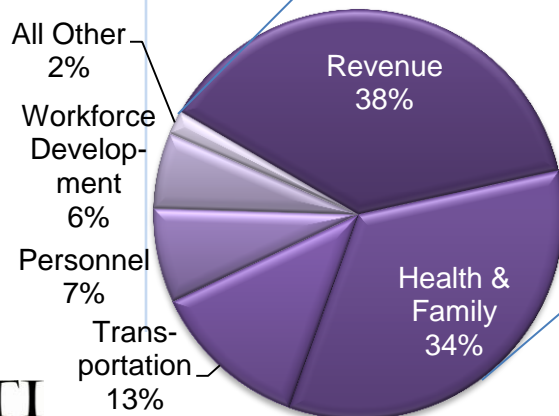
Total COT Billing
(\$65.9 Million)Rated Services
(\$45.8 Million)

◆ **Enterprise assessment nearly one-third of COT's billings**

- Does not appear to materially subsidize rated services

◆ **Mainframe billings over 50% of COT rated services funding**

- Funded almost entirely by five cabinets
- Should any choose to leave mainframe, costs would escalate for remaining cabinets
- Mainframe fiscal requirements may drive technology decisions

COT Mainframe Billing
by Agency
(\$27.9 Million)



Findings

IT Organization and Service Delivery

- ◆ **COT sole provider for some commodity services**
 - Network backbone (e.g., WAN)
 - Email and messaging services
- ◆ **Many commodity services use federated delivery model**
 - Data center operations
 - Network security
 - Telecommunications
 - Server administration
 - Storage administration
 - PC support
- ◆ **Concerns related to broader shared services include**
 - Significant investment in distributed IT infrastructure
 - Ability to align provision of services with private sector
 - Reported low levels of trust and perceived capability

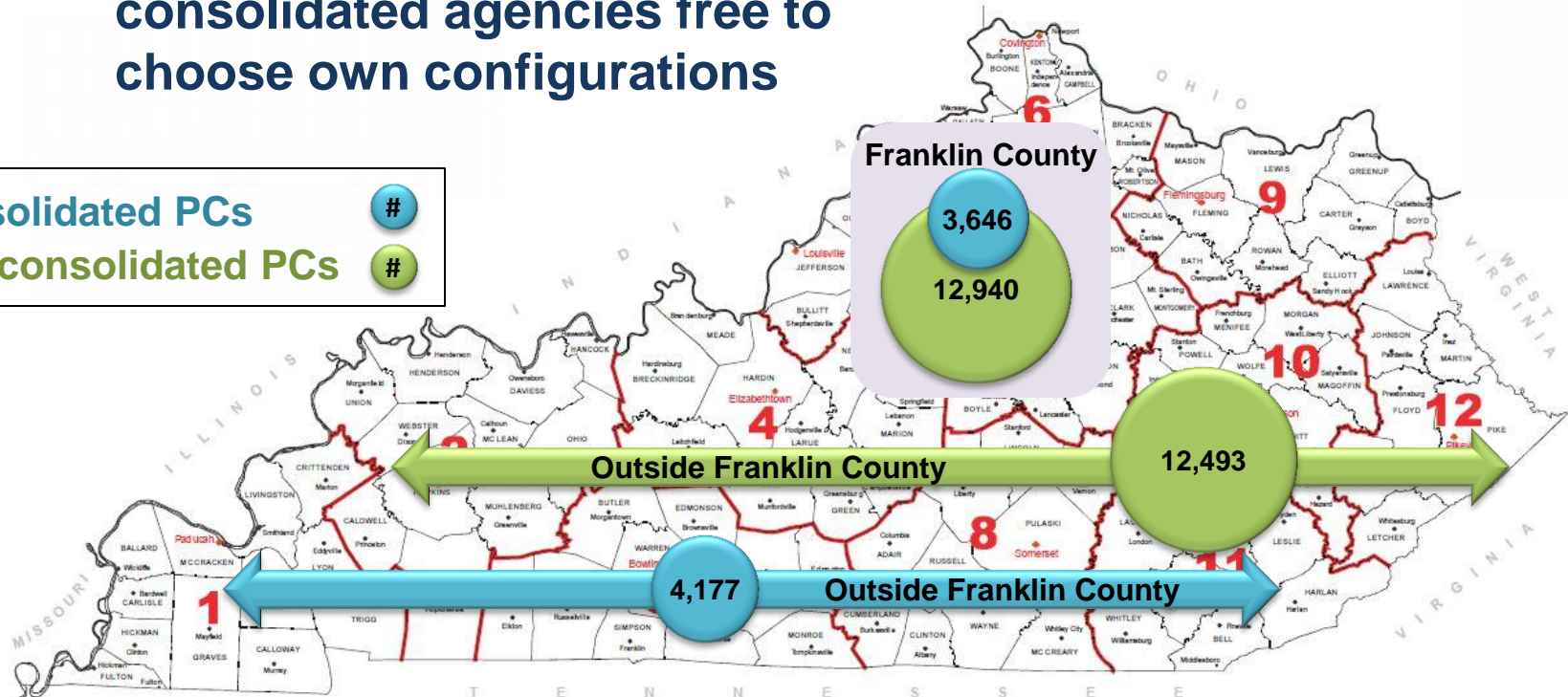


Findings

IT Organization and Service Delivery

Workload Drivers – PC Analysis

- ◆ PCs split evenly between Franklin County and elsewhere
- ◆ About one-fourth of PCs supported by COT
- ◆ COT has PC standardization project underway – non-consolidated agencies free to choose own configurations





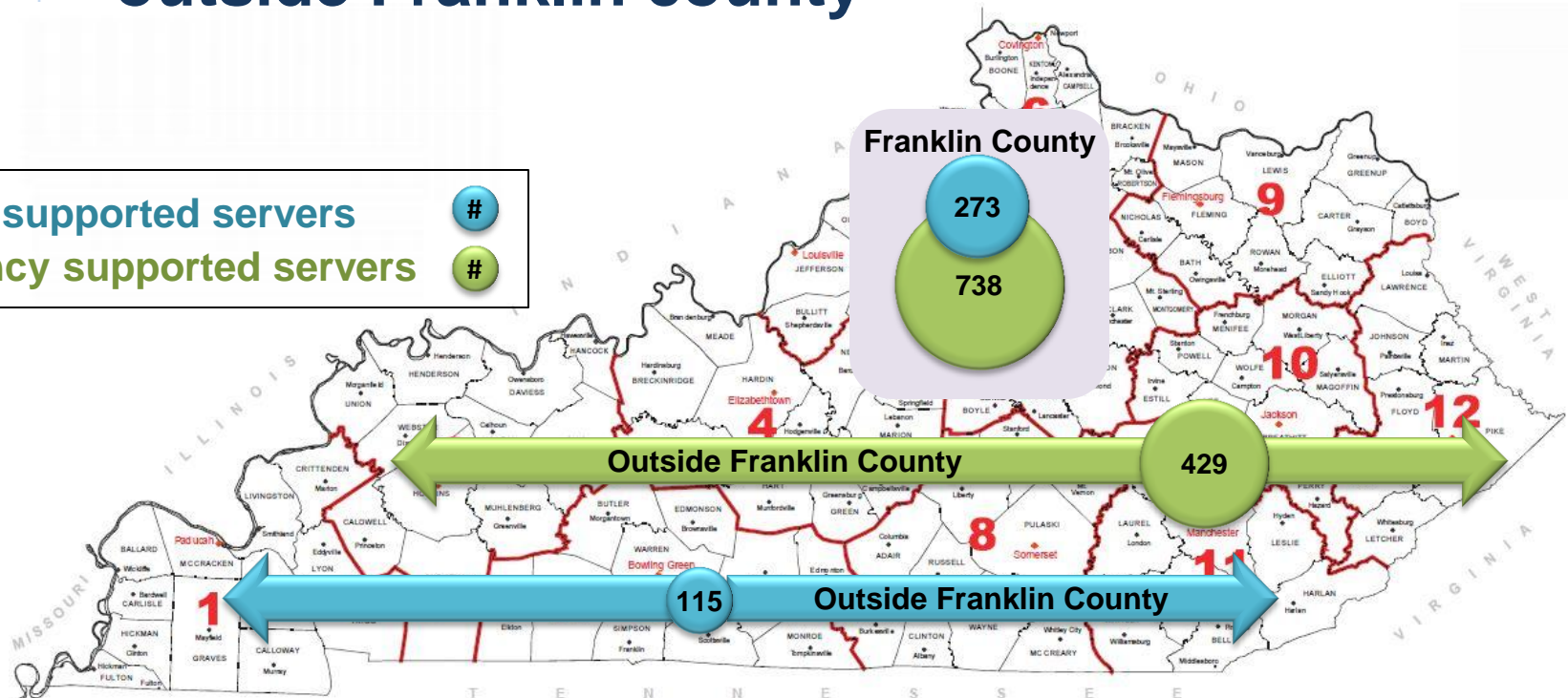
Findings

IT Organization and Service Delivery

Workload Drivers – Server Analysis

- ◆ 25% of Kentucky's servers managed by COT
- ◆ Approximately one-third of servers located outside Franklin county

COT supported servers #
Agency supported servers #





Findings

IT Organization and Service Delivery

Workload Drivers – IT Facility Analysis

- ◆ No Tier 4 data center
- ◆ COT maintains robust, enterprise-level data center with best-practice components
- ◆ Agencies report 13 designed and 11 adapted IT facilities in Franklin County, duplicating operationally expensive infrastructure
- ◆ Large number of substandard IT facilities, particularly outside Franklin County, putting those systems at risk
- ◆ Limited disaster recovery capabilities – no business continuity sites for major IT facilities



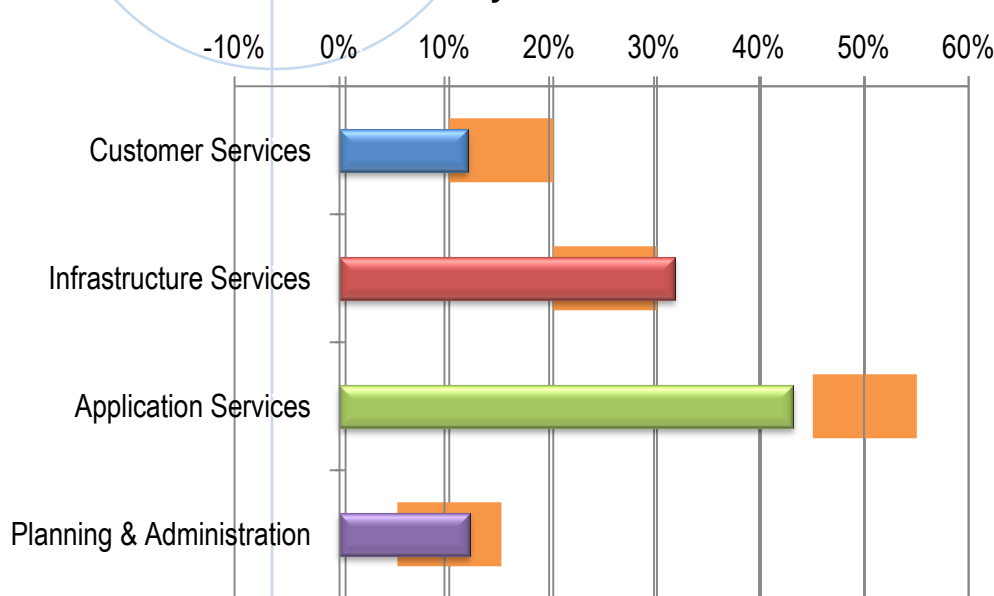
Location	Designed	Adapted	Ad Hoc	Closet	Open	TOTAL
Franklin	13	11	42	47	2	115
Other	1	38	8	241	150	438
TOTAL	14	49	50	288	152	553

Findings

IT Organization and Service Delivery

Staff Analysis

IT FTE Allocation by Functional Area

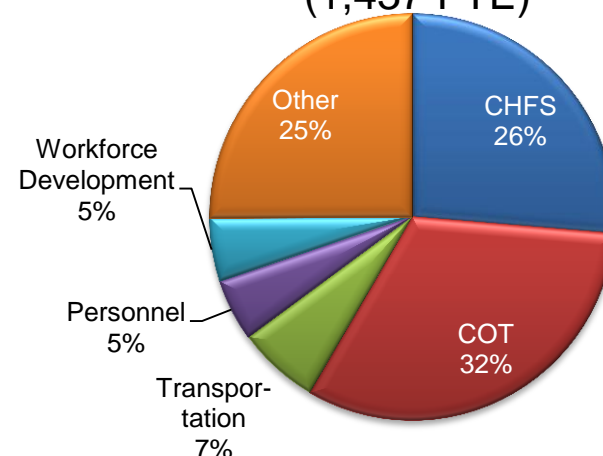


PTI Target Range

Category	FTE
Customer Services	175
Infrastructure Services	463
Application Services	620
Planning & Administration	178
TOTAL IT FTE	1,437

◆ Overall IT staff allocation largely within PTI target ranges

◆ COT and CHFS represent majority of IT labor

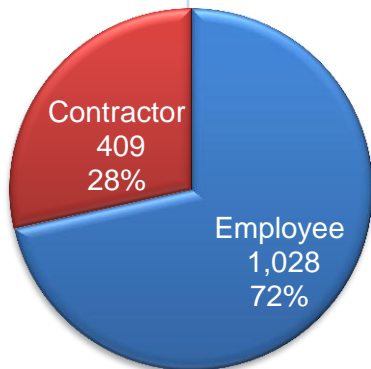
Total IT Labor by Cabinet
(1,437 FTE)

Findings

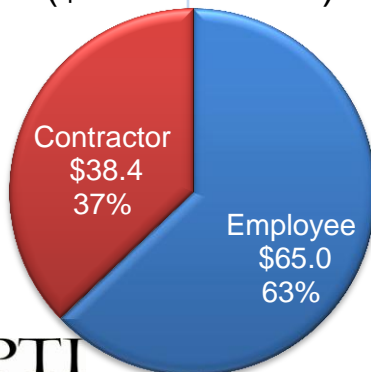
IT Organization and Service Delivery

Contractor Analysis

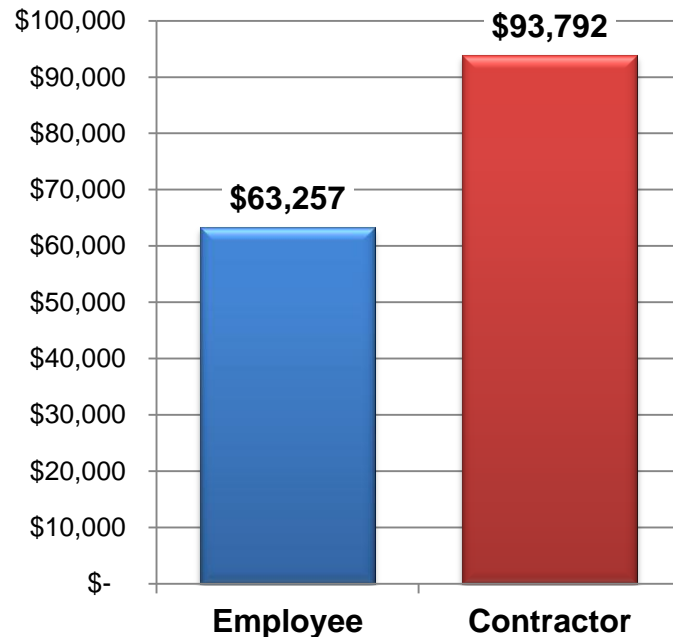
IT Labor Force
(1,437 FTE)



IT Labor Expenditure
(\$103.4 Million)



Average Annual Cost per IT FTE
(employee vs. contractor)



- ◆ Contractors approximately 50% more expensive than Commonwealth IT employees
- ◆ Gartner 2011 survey showed 13% average contractor portion of IT FTEs
- ◆ Merit system constraints contribute to contractor usage



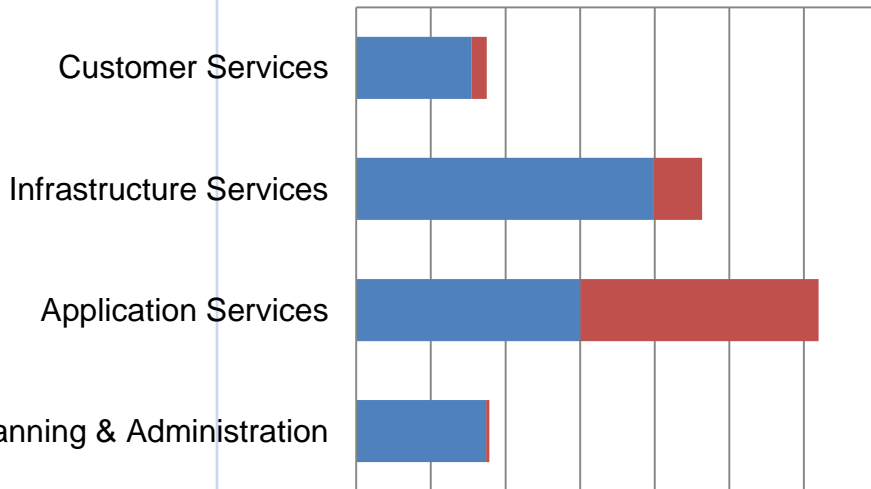
Findings

IT Organization and Service Delivery

Contractor Analysis

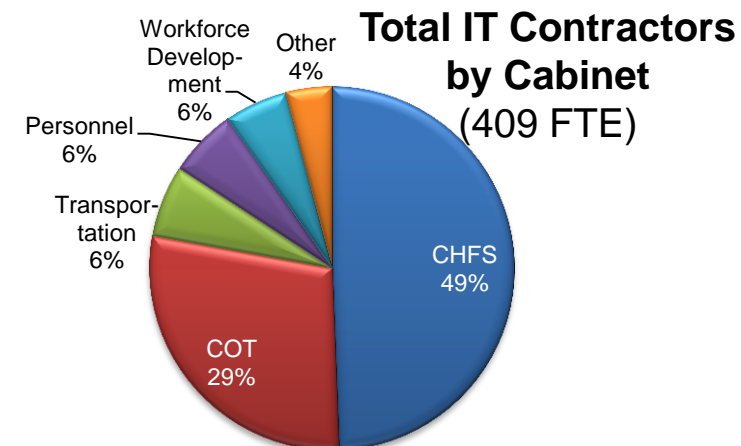
IT FTE Allocation by Functional Area (Employee vs. Contractor)

- 100 200 300 400 500 600 700



	Planning & Administration	Application Services	Infrastructure Services	Customer Services	Total
Employee	174	301	398	155	1,028
Contractor	4	319	66	20	409

- ◆ Extensive reliance on contractors, for application services
- ◆ 58% of IT contractors support agency applications – majority custom developed
- ◆ COT and CHFS have majority of IT contractors

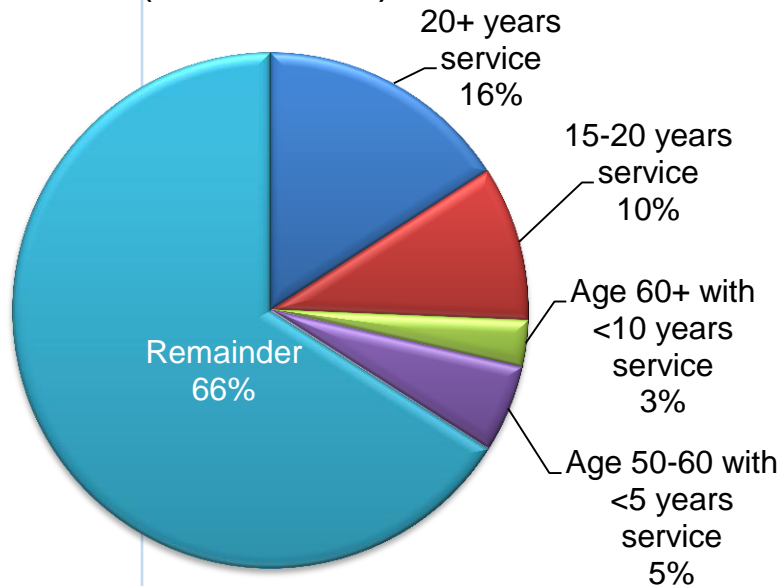


Findings

IT Organization and Service Delivery

IT Employee Years of Service Analysis

IT Employee Years of Service
(1,100 FTE)*



*Provided by Personnel Cabinet based on job classification. Includes some IT-titled staff not considered IT employees by their cabinets.

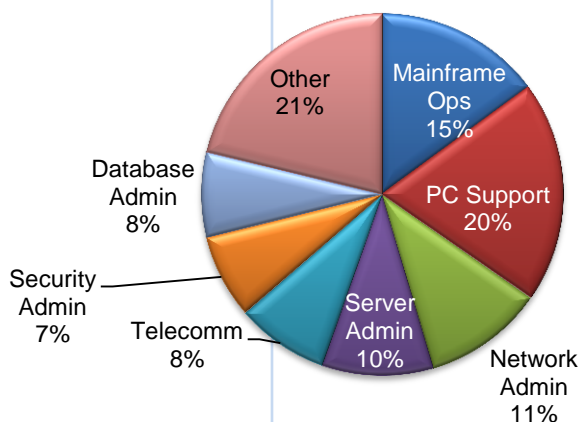
- ◆ One-third of IT staff may be eligible for retirement in next five years
- ◆ Slightly higher than average reported by states in 2010 NASCIO survey

Findings

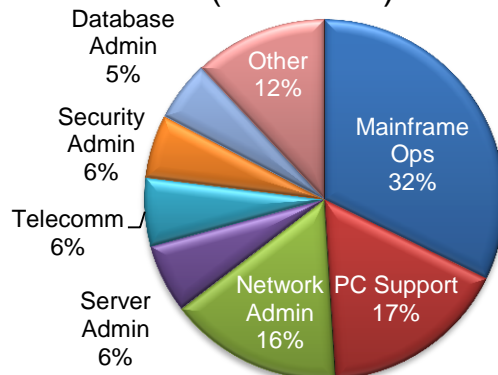
IT Organization and Service Delivery

IT Infrastructure Labor Analysis

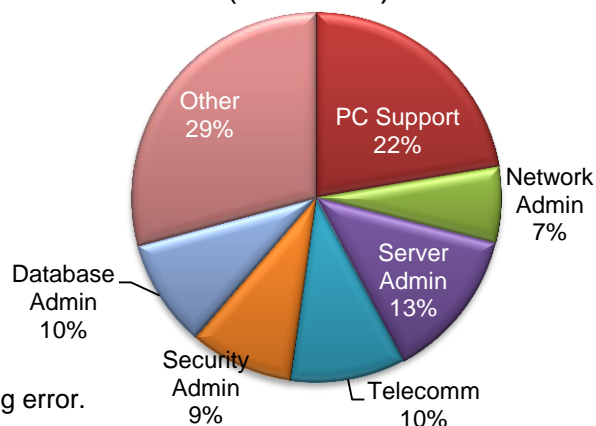
Total IT Infrastructure Labor
(463 FTE)*



COT IT Infrastructure Labor
(217 FTEs)*



Other Agency IT Infrastructure Labor
(247 FTE)*



- ◆ Nearly one-third of COT's infrastructure labor effort supporting mainframe operations

- ◆ Several commodity IT services distributed among agencies

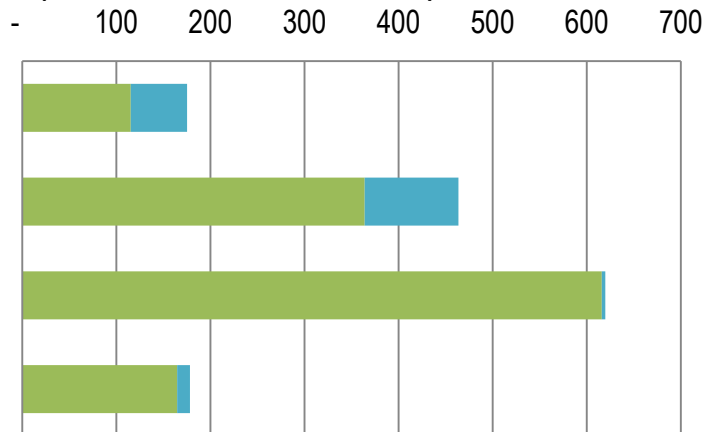
- Telecommunications
- Server administration
- Network administration
- PC administration

Findings

IT Organization and Service Delivery

Geographic Staff Analysis

**IT FTE Allocation by Functional Area
(Franklin vs. Other)**



	Planning & Administration	Application Services	Infrastructure Services	Customer Services	Total
■ Franklin	165	616	364	115	1,260
■ Other	14	4	100	60	177

- ◆ **Application, planning, and administration services staff concentrated in Franklin County**
- ◆ **Approximately 75% of customer and infrastructure services staff located within Franklin County**

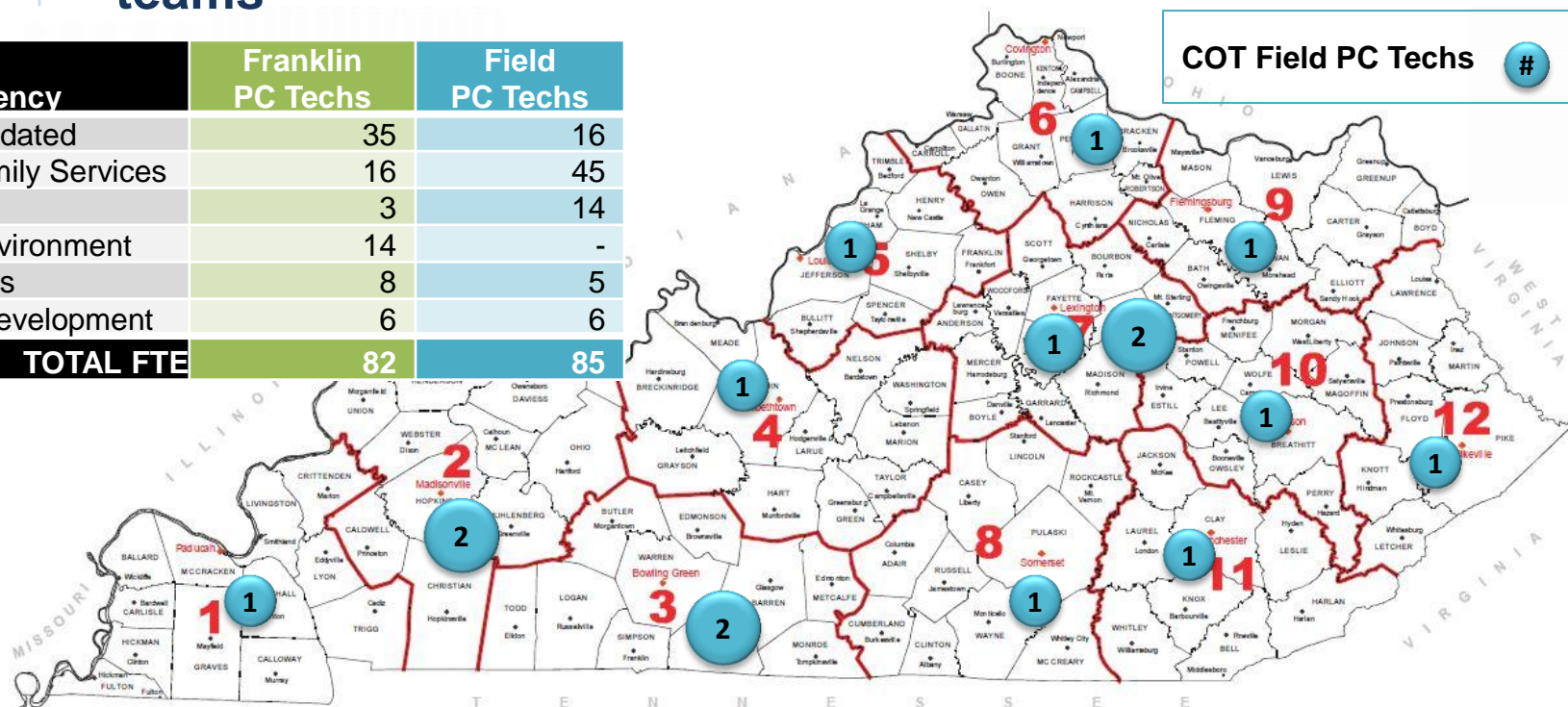
Findings

IT Organization and Service Delivery

COT Field Technician Analysis

- ◆ COT deploys extensive network of PC field technicians to support consolidated agencies outside Franklin County
- ◆ Several other agencies maintain significant PC support teams

Agency	Franklin PC Techs	Field PC Techs
COT Consolidated	35	16
Health & Family Services	16	45
Corrections	3	14
Energy & Environment	14	-
Military Affairs	8	5
Workforce Development	6	6
TOTAL FTE	82	85

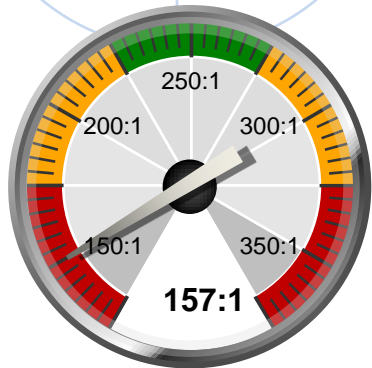


Findings

IT Organization and Service Delivery

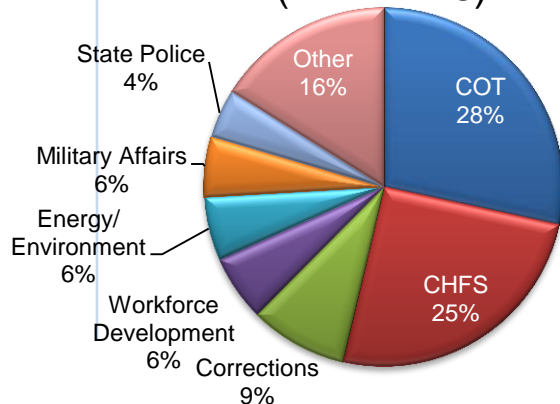
PC Support Analysis

PC Support Ratio*



PC Support FTE	Desktops + Laptops	Support Ratio
214.09	33,606	157:1

PC Support (214 FTEs)



- ◆ PC support includes help desk, field technician, and image management
- ◆ PC support levels below PTI's benchmarks
- ◆ Typical causes include lack of PC standards, lack of remote maintenance/upgrade tools, geographic dispersion, and support fragmented across organizations
- ◆ COT and CHFS report largest PC support organizations; several other agencies report significant PC support staff



Findings

IT Organization and Service Delivery

Server Support Analysis

Server Administration Support Ratios

	Server Support FTE	Server Count	Support Ratio
COT Physical Wintel	6.83	358	52:1
Agency Physical Wintel	27.92	1,103	40:1
COT Virtual Wintel	6.83	341	50:1
Agency Virtual Wintel	27.92	1,574	56:1
COT Physical UNIX/AIX	6.33	180	28:1
Agency Physical UNIX/AIX	2.26	64	28:1

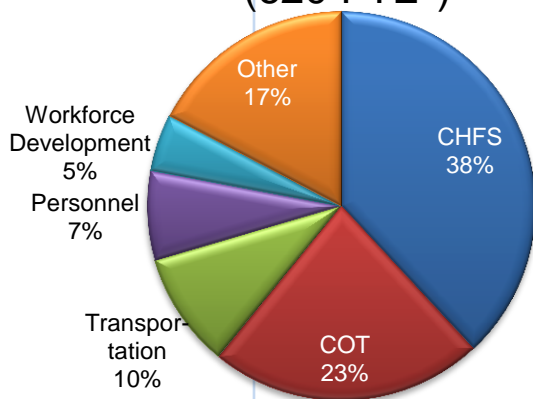
- ◆ Server support ratios within PTI target ranges
- ◆ COT and agency support ratios similar for all server categories

Findings

IT Organization and Service Delivery

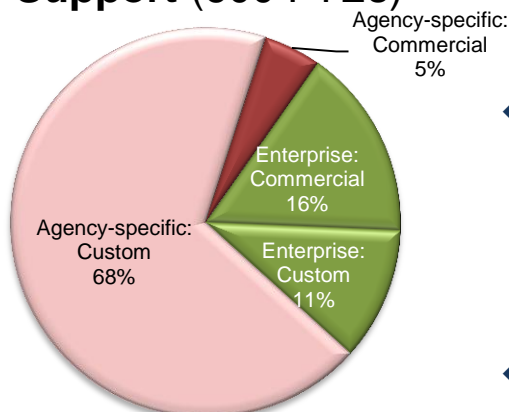
Application Support Analysis

Application Support by Cabinet
(620 FTE*)



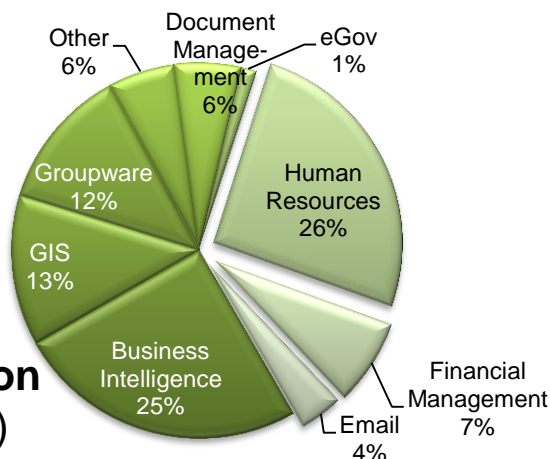
*Includes 19.73 FTE of O&M project management labor effort.

Total Application Support
(600 FTEs)



- ◆ Over 60% of application support staff in CHFS or COT
- ◆ Cabinets relying heavily on custom applications for agency-specific business needs
- ◆ Only three common applications centrally supported

Enterprise Application Support
(162 FTEs)



- KHRIS (human resources) by Personnel Cabinet
- eMARS (financial management) by Finance & Administration Cabinet
- Email by COT

Discussion

- ◆ **Federated IT service delivery model common**
- ◆ **Unlike Kentucky, most states have fulltime CIOs**
- ◆ **Difficult to assess delivery alternatives for selected IT services**
- ◆ **Approach to IT infrastructure management increases risk of service interruption, and unauthorized access**
- ◆ **IT infrastructure not well positioned for the future**
- ◆ **Diverse IT infrastructure impacts future positioning**
- ◆ **Highly distributed IT workforce**
 - Commodity disciplines distributed across Commonwealth
 - Extensive use of contractors
 - Merit system constrains ability to hire some skills, contributes to reliance on contractors
- ◆ **Potential cost savings**
 - Reduced contractor usage
 - Shared infrastructure support services
 - IT facility and equipment consolidation
 - Common application platforms
 - Alternative sourcing (longer term)

Next Steps

- ◆ **April & May: Develop recommendations**
- ◆ **May & June: Deliver draft report**
- ◆ **June 29: Deliver final report and presentation**